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SEED INTELLECTUAL PROPERTY LAW GROUP PLLC
701 FIFTH AVE
SUITE 5400
SEATTLE, WA 98104

EXAMINER	
AMRANY, ADI	

ART UNIT	PAPER NUMBER
2836	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/506,944	WOBBEN, ALOYS	
	Examiner	Art Unit	
	ADI AMRANY	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-17,19,21-23 and 25-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-17,19,21-23 and 25-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 August 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/11/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. Da Ponte, previously presented in the rejection of claims 5, 10 and 34-35 discloses feeding energy into a DC bus and then supplying a load through a unidirectional inverter and measuring AC load demand via a device on the DC bus bar. Also, foreign reference DE 20113372 (IDS of May 31, 2005) discloses a unidirectional inverter to provide power to an AC load.

In response to applicant's arguments regarding Wichert (Remarks, page 13, second paragraph, lines 7-9), the Examiner respectfully points to the configuration in which Wichert does not have any DC loads. One skilled in the art would readily understand how to configure the system in which there are only AC loads. Without a DC load, all demanded power will be associated with the AC loads (regardless of the placement of the sensing device), and there would be no "added complications" associated with a different category of load.

Drawings

2. Replacement figure 3 was received on August 11, 2008. This figure is acceptable and will be entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3-5, 8-10, 19, 21-23, 26-27, 29, 31 and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wichert ("PV-Diesel Hybrid Energy Systems for Remote Area Power Generation – A Review of Current Practice and Future Developments"), in view of Da Ponte (US 6,175,217).

With respect to claim 1, Wichert discloses an isolated electrical network (fig 1 on page 213; page 209, Introduction, lines 1-3) comprising:

at least one first power generator ("wind generator"; page 212, lines 1-3), coupled to a wind turbine to produce electrical power;

at least one intermediate storage device to store electrical power coupled to the first power generator (figs 1-2, "battery bank;" page 222);

a second generator coupled to an internal combustion engine ("diesel engine + alternator");

a dc bus bar (figures 1-2) to feed electrical power from the first power generator and the intermediate storage device into an ac network (via a bi-directional inverter);

a dc device (inherent) to detect the electrical power required in the network (pages 218-219); and

a controller (fig 2; unlabeled oval) operable to control electrical power provided by the wind turbine that is delivered to the ac network in response to the required electrical power in the ac network being less than the electrical power generated by the first power generator, control the electrical power provided by

the intermediate storage device that is delivered to the ac network in response to the required electrical power in the ac network being greater than the electrical power generated by the first power generator, and control electrical power provided by the second generator coupled to the internal combustion engine that is delivered to the ac network in response to the detected electrical power required in the ac network being greater than the electrical power generated by the first power generator and provided by the intermediate device (page 218 last paragraph through 219, first paragraph, including footnote 7).

Wichert discloses that the regenerative energy system is always on (page 218, footnote 7). The net load, which is the load to be powered by the electrical intermediate storage device and the combustion engine, is calculated *after* the energy produced by the wind turbine is taken into account. Wichert then discloses that the electrical intermediate storage device is discharged before the engine to minimize the usage of the combustion engines. Wichert discloses the claimed 1-2-3 order of activation.

Furthermore, in order to calculate the net load, it is inherent that Wichert includes a device for detecting the electrical power required in the network. Wichert discloses three types of components (fig 1). There are power generators, storage devices, and loads. Wichert discloses computing the net load required by the power suppliers (generators and discharging storage devices).

Wichert does not expressly disclose unidirectional flow from the DC bus bar to the AC network or the dc device is coupled to the dc bus bar. Da Ponte discloses an isolated network (fig 1; col. 3-4) comprising: a wind turbine (10; col. 3, lines 57-62), an

intermediate storage device (28; col. 4, lines 54-64), a dc bus bar (VDC; col. 3, lines 62-64), unidirectional power flow from the dc bus bar to the ac network (fig 1 and 7a, item 14; col. 3, line 64 to col. 4, line 1; col. 9, lines 30-33), a dc device (16; col. 4, lines 26-45) coupled to the dc bus bar to detect the power required in the ac network (col. 5, lines 5-57), and a controller (16) to control the supply of power from the various sources.

Wichert and Da Ponte are analogous because they are from the same field of endeavor, namely hybrid energy systems. At the time of the invention by applicant, it would have been obvious to a person of ordinary skill in the art to combine the hybrid energy system disclosed in Wichert with intermediate DC bus and unidirectional flow disclosed in Da Ponte in order to control output power to a variable load from a variable power source (Da Ponte, col. 4, lines 4-15).

As previously discussed, it would be obvious to one skilled in the art to compute the Wichert net load from any perspective. Specifically, it would be obvious to label all loads as “ac loads” and detect the electrical power required in the network via the dc bus bar. In this embodiment, the ac bus bar and ac load combine to form one equivalent load. A dc device would be able to detect electrical power required by this equivalent load (which represents the ac network) by sensing the dc power drawn through the bi-directional inverter. Similarly, an ac device would be able to detect power required in dc network. This scenario is further demonstrated in the embodiment in which there are no dc loads (fig 1, lower left component). In this embodiment, electrical power from the dc bus bar can be passed only to the battery and the inverter. When the

battery is full, all electrical power being drawn from the dc bus bar is delivered directly to the ac network. Thus, one skilled in the art would be able to detect ac power demand through a dc device. Wichert discloses that the network detects load demand. The network would operate in the same manner regardless of the type of device used (dc or ac).

With respect to claim 3, Wichert further discloses at least one electrical element ("battery bank"; page 211, lines 26-28) coupled to a dc voltage intermediate circuit.

With respect to claim 4, Wichert discloses that the electrical element includes at least one selected from a group consisting of a photovoltaic element, a mechanical energy storage device, an electrochemical storage device, a capacitor, and a chemical storage device (fig 2, page 222).

With respect to claims 5 and 10, Da Ponte discloses one of the storage devices can be a flywheel (col. 1, lines 40-41; col. 3, lines 57-62; col. 7, lines 50-53).

With respect to claim 8, Wichert further discloses a boost/buck converter ("battery charger"; page 222) coupled between the electrical element and the dc voltage intermediate circuit.

With respect to claim 9, Wichert discloses charging/discharging circuits (figs 1-4; "battery charger") coupled between the intermediate storage device and the dc voltage intermediate circuit.

With respect to claims 19 and 21-22, Wichert and Da Ponte disclose the apparatus necessary to complete the recited methods, as discussed above in the rejection of claim 1.

With respect to claim 23, Wichert further discloses delivering energy from electrical intermediate storage devices ("battery bank"; page 211, lines 26-28) to overcome frequency instabilities or deviations in the network power frequency from a desired value.

With respect to claim 26, Wichert further discloses wherein in response to the output electrical power of the first power generator being greater than a power of a load required in the ac network, electrical energy of the first generator is supplied to the intermediate storage device if the intermediate storage device is not full charged (page 222, lines 13-15).

With respect to claim 27, Wichert discloses the wind-power station (fig 1, page 218).

With respect claim 29, Wichert discloses the intermediate storage device is at least one of an accumulator block type and a battery storage device (figs 1-2, "battery bank").

With respect to claim 31, it would be obvious to one skilled in the art to install another generator and internal combustion engine, since it has been held that the mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8 (CCPA 1977).

With respect to claims 34-35, Da Pont discloses at least one intermediate storage device includes a flywheel (col. 3, lines 57-62) or a capacitor (fig 1, item 28; col. 4, lines 54-64).

5. Claims 2, 11-14, 16-17, 25, 28, 30 and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wichert in view of Da Ponte and De Zeeuw ("On the Components of a Wind Turbine Autonomous Energy System").

With respect to claim 2, Wichert discloses the isolated electrical network according to claim 1, but does not expressly disclose the first power generator has a synchronous generator, which contains a converter with a dc voltage intermediate circuit with at least one first rectifier and an inverter. Wichert discloses using a bi-directional inverter (fig 1; page 212, lines 36-37). De Zeeuw discloses a first energy producer (page 193, col. 1, lines 15-16), a synchronous generator (page 193, col. 2, lines 3-5), and a converter (fig 1; page 193, col. 1, lines 19-21), having at least one first rectifier and an inverter.

Wichert, Da Ponte and De Zeeuw are analogous because they are from the same field of endeavor, namely, hybrid energy systems. At the time of the invention by applicant, it would have been obvious to combine the hybrid energy system disclosed in Wichert with the synchronous generator disclosed in De Zeeuw in order to properly couple the AC power lines to supply the load.

With respect to claim 11, De Zeeuw discloses an additional power generator (fig 1, page 193; col. 2, lines 27-31) and Wichert discloses the generators are operable to use renewable energy sources and the intermediate storage device powers a common dc voltage intermediate circuit (fig 1, "dc bus").

With respect to claim 12, De Zeeuw discloses a network-commutated inverter (page 193, col. 1, line 44 to col. 2, line 2).

With respect to claim 13, De Zeeuw discloses an electromagnetic coupling ("clutch"), wherein energy to operate the electromagnetic coupling is made available by an electricity storage device and/or by a primary power generator (page 193, col. 2, lines 8-11). It is inherent that the energy for operating the coupling must come from within the isolated system. Although De Zeeuw does not expressly disclose where the power is taken from, it would be obvious to a person of ordinary skill that the wind turbines or the controllable loads would supply the operating power.

With respect to claim 14, De Zeeuw discloses a seawater desalination/service water generation plant connected to the isolated electrical network, wherein the plant generates service water and drinking water in response to the electrical power supplied by the first power generator being greater than power consumption of other electrical loads coupled to the isolated electrical network (page 193, col. 1, lines 1-14). De Zeeuw discloses that the isolated network is designed for supplying electricity to an area where no utility grid exists, and that the network has been used on a coastline. De Zeeuw also provides a discussion on how to prevent salt corrosion on the wind turbine. It would be obvious to a person skilled in the art to use this network in a locale where there are no established sources of electricity or drinkable water. De Zeeuw further discloses that excess energy may be routed to a controllable load (page 193, col. 2, lines 15-20). Therefor, it would be obvious to supply power generated by the isolated electrical network to a seawater desalination/usable water production plant.

With respect to claim 16, De Zeeuw discloses a synchronous generator (SM2; page 193, col. 2, lines 3-10) operable as a network generator, wherein the synchronous

generator operates in a motor mode (page 193, col. 2, lines 11-15, "synchronous compensator") with energy required from the first power generator.

If the internal combustion engine is turned off or disconnected from the system, the only source of energy is the primary power generator (wind turbines). Therefor, it is inherent that the first power generator would power the synchronous generator in motor mode.

With respect to claim 17, De Zeeuw further discloses the synchronous generator is coupled to the internal combustion engine (fig 1; page 193, col. 2, lines 8-11), and the synchronous generator is deactivated when the electrical power of the primary power generator is greater than or approximately the same as electrical power consumption in the isolated electrical network.

With respect to claim 25, De Zeeuw discloses a synchronous generator to serve as a network generator (SM2; page 193, col. 2, lines 3-10) for a network-commutated inverter (page 193, col. 1, line 44 to col. 2, line 2) to feed an alternating current into the network, the synchronous generator works in motor operation (page 193, col. 2, lines 11-15, "synchronous compensator") and a drive of the synchronous generator realizable by providing at least one of energy from a flywheel and electrical energy from a renewable-energy power generator (SM1; page 193, col. 1, lines 15-16).

With respect to claim 28, De Zeeuw discloses the control of the wind-power station (page 193, col. 2, lines 41-46).

With respect to claim 30, Wichert discloses a distributor coupled to the output side of the inverter (fig 4, switch between ac bus and ac load). Wichert discloses controlling the load. The switch controls distribution of power to the load.

With respect to claim 32, De Zeeuw discloses the electromagnetic coupling, as discussed above in the rejection of claim 13.

With respect to claim 33, De Zeeuw discloses using a synchronous generator, as discussed above and Wichert discloses the generator is separated from the isolated electrical network via a switching device (fig 4).

6. Claims 6 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wichert in view of Da Ponte and Jaunich (US 6,605,880).

Wichert discloses the isolated electrical network according to claim 1, but does not expressly disclose a plurality of internal combustion engines, each operable to be coupled to a generator. Jaunich discloses a plurality of secondary generators (col. 3, lines 61-67), where the generators are internal combustion engines (col. 3, lines 46-50).

Wichert, Da Ponte and Jaunich are analogous because they are from the same field of endeavor, namely hybrid energy systems that utilize both a renewable energy source and an internal combustion engine. At the time of the invention by applicant, it would have been obvious to combine the hybrid energy system disclosed in Wichert with the multiple internal combustion engines disclosed in Jaunich in order to increase the power capacity of the isolated electrical network to supply the quantity of power required by the loads.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wichert, in view of Da Ponte and Offringa (EP 046,530 A1).

Wichert discloses the isolated electrical network according to claim 1, but does not expressly disclose a pump storage device is provided, which receives its electrical energy from the primary power generator. Offringa discloses uses variations in a wind turbine's power output to control a pump station, in order to pump water to increased heights (abstract, lines 16-20).

Wichert, Da Ponte and Offringa are analogous because they are from the same field of endeavor, namely hybrid energy systems that utilize both a renewable energy source and an internal combustion engine. At the time of the invention by applicant, it would have been obvious to combine the hybrid energy system disclosed in Wichert with having the excess network power supplied to a pump station as disclosed in Offringa in order to apply excess power to a load in order to keep the network power output constant.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADI AMRANY whose telephone number is (571)272-0415. The examiner can normally be reached on Mon-Thurs, from 10am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J Sherry/
Supervisory Patent Examiner, Art Unit 2836